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National Center for Agricultural Utilization Research

Soy Composites

What is this technology?

Soybean oil based composites are made from epoxidized soybean oil (ESO), curing agents and fibers. The polymer slurry can be used with solid freeform fabrication or the traditional mold method for making parts or objects.

Solid free-form fabrication builds materials by the repetitive addition of thin layers of slurry; the process is controlled by a computer program that contains specifications for the desired object.

What problem does it address?

Soy composites are less costly than the petroleum-derived resins currently used in parts manufacturing. Additional cost savings are realized by the environmental benefits of using renewable resources.

Petroleum-derived resins only result in one level of hardness, which is not suitable for all applications.

Who could use this technology?

This technology is of high interest to industries such as:

- Automobile, farm machinery and other vehicle manufacturers for interior parts and dashboards
- Construction industry for drywall insulation
- Defense industry where light, inexpensive and disposable materials are needed

How is this technology unique?

- The viscosity of the slurry can be adjusted as necessary
- Properties of the end product, such as strength, flexibility and biodegrability can be adjusted as necessary for specific applications.

CRADA Opportunity

There are multiple applications of this technology, covering a wide range of industries; commercial partners are needed for application and process development.

Stage of Development

Soybased composite has been prepared successfully in large scale.

IP Status

Awarded U.S. Patent 6,528,571

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